



# UNITED STATES PATENT AND TRADEMARK OFFICE

*een*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,186	05/06/2005	Mats Leijon	37399-400300	5301
27717	7590	08/28/2007	EXAMINER	
SEYFARTH SHAW LLP			JACOBS, DUSTIN THOMAS	
131 S. DEARBORN ST., SUITE 2400			ART UNIT	PAPER NUMBER
CHICAGO, IL 60603-5803			2834	
MAIL DATE		DELIVERY MODE		
08/28/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/534,186	LEIJON ET AL.
	Examiner	Art Unit
	Dustin Jacobs	2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 May 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-16 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 06 May 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 05/06/2005.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Sweden 0203434-6, filed on 11/18/2002.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 05/06/2005 was filed on the mailing date of the application, 10/534186, on 05/06/2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gyro suspension of the power storage in claim 13, the two rotary masses arranged to rotate in opposite directions, and the conductor surrounded by a first semiconducting layer, insulation, and a second semiconducting layer must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The examiner does not see how the two rotary masses from the Figure 3 of the

drawings can rotate in opposite directions of rotation in relation to each other when they are connected to the same flywheel (22 of figure 3).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. (US Patent 6,069,424) in view of Kawamura (US Publication 2002/0060505).

Colello et al. '424 discloses:

- A power storage system (Fig. 2) intended to transmit power to and from a driving system (150, Fig. 2) of a vehicle, said driving system having at least one electric apparatus (125, Fig. 2).
- A power storage (500, Fig. 3) having a stator (515, Fig. 3) and a stator-provided winding (530, Fig. 3) and at least one rotor (510, Fig. 3) provided with a magnetic-flux generating device (560, Fig. 3).
- The rotor (510, Fig. 3) being connected to at least one flywheel (505, Fig. 3) intended for storage of energy in the form of kinetic energy (col. 4, lines 4-6) in at least one rotary mass (505, Fig. 3).

- The power storage (500, Fig. 3) being arranged to transmit power to and from the electric apparatus (125, Fig. 2; col. 3, lines 43-45).

Colello et al. '424 does not disclose:

- A first winding arranged to operate at low voltage as well as a second winding arranged to operate at high voltage, said first and second windings being arranged to operate independently of each other.

Kawamura '505 discloses:

- A stator (8, Fig. 2) with a first winding (30a, Fig. 5) arranged to operate at low voltage (par. 63, lines 21-23) as well as a second winding (30b, Fig. 5) arranged to operate at high voltage (par. 63, lines 25-27), said first and second windings being arranged to operate independently of each other.

The advantage of Kawamura '505 is to provide diverse power-generation characteristics to ensure powers different in voltage from one another (par. 11, lines 3-8).

Kawamura '505 teaches that it is known to provide a stator (8, Fig. 2) with a first winding (30a, Fig. 5) arranged to operate at low voltage (par. 63, lines 21-23) as well as a second winding (30b, Fig. 5) arranged to operate at high voltage (par. 63, lines 25-27), said first and second windings being arranged to operate independently of each other. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a stator (8, Fig. 2) with a first winding (30a, Fig. 5) arranged to operate at low voltage (par. 63, lines 21-23) as well as a second winding (30b, Fig. 5) arranged to operate at high voltage (par. 63, lines 25-27), said first and

second windings being arranged to operate independently of each other as taught by Kawamura '505, since Kawamura '505 states that such a modification would provide diverse power-generation characteristics to ensure powers different in voltage from one another (par. 11, lines 3-8).

In re claim 4, Colello et al. '424 discloses the magnetic-flux generating device (560, Fig. 3) in the rotor (510, Fig. 3) is comprised of permanent magnets (560, Fig. 3).

In re claim 8, Kawamura '505 discloses the first winding (30a, Fig. 5) is arranged to operate at a voltage that is lower than 380V (par. 63, lines 21-23).

In re claim 9, Kawamura '505 discloses said first winding is arranged to operate at a voltage that is in the interval of 6-50V (par. 63, lines 21-23).

8. Claims 2, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Sadarangani et al. (US Patent 6,098,735).

Sadarangani et al. '735 discloses:

- At least one energy storage (22, Fig. 4; col. 2, line 52) is comprised, which energy storage is connected with an electric apparatus (30, Fig. 4; col. 3, lines 31-33), the power storage (23, Fig. 4; col. 3, lines 36-37) being arranged to transmit power (col. 3, lines 31-33) to and from said energy storage.

The advantage of Sadarangani et al. '735 is to achieve a system that provides optimal distribution of load (col. 1, lines 38-40).

Sadarangani et al. '735 teaches that it is known to provide at least one energy storage (22, Fig. 4; col. 2, line 52) is comprised, which energy storage is connected with an electric apparatus (30, Fig. 4; col. 3, lines 31-33), the power storage (23, Fig. 4; col. 3, lines 36-37) being arranged to transmit power (col. 3, lines 31-33) to and from said energy storage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide at least one energy storage (22, Fig. 4; col. 2, line 52) is comprised, which energy storage is connected with an electric apparatus (30, Fig. 4; col. 3, lines 31-33), the power storage (23, Fig. 4; col. 3, lines 36-37) being arranged to transmit power (col. 3, lines 31-33) to and from said energy storage as taught by Sadarangani et al. '735, since Sadarangani et al. '735 states that such a modification would achieve a system that provides optimal distribution of load (col. 1, lines 38-40).

In re claim 3, Sadarangani et al. '735 discloses the power storage (23, Fig. 4) is arranged to receive power that has been transmitted from an external source (28, Fig. 4).

In re claim 5, Sadarangani et al. '735 discloses the magnetic-flux generating device (33, Fig. 7) in the rotor (25, Fig. 7) is a squirrel cage winding (33, Fig. 7)

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Ueyama et al. (US Patent 5,739,609).

Colello et al. '424 in view of Kawamura '505 discloses:

- The rotor (510, Fig. 3) is mounted with bearings (col. 5, lines 38-40).

Colello et al. '424 in view of Kawamura '505 does not disclose:

- The rotor is mounted with magnetic bearings.

Ueyama et al. '609 discloses;

- The rotor (4, Fig. 1) is mounted with magnetic bearings (5, Fig. 1).

The advantage of Ueyama et al. '609 is to prevent touchdown bearings from being damaged at the time of emergency stop (col. 1, lines 49-52).

Ueyama et al. '609 teaches that it is known to provide a rotor (4, Fig. 1) mounted with magnetic bearings (5, Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a rotor (4, Fig. 1) mounted with magnetic bearings (5, Fig. 1) as taught by Ueyama et al. '609, since Ueyama et al. '609 states that such a modification would prevent touchdown bearings from being damaged at the time of emergency stop (col. 1, lines 49-52).

In re claim 7, Ueyama et al. '609 discloses the rotor (4, Fig. 1) is also mounted with slide bearings (12, Fig. 1).

10. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Leijon (WO 99/17427).

Colello et al. '424 in view of Kawamura '505 discloses the claimed invention except for the winding arranged to operate at a voltage above 380V and in an interval of 1-24kV. It would have been obvious to one having ordinary skill in

the art at the time the invention was made to provide a winding to operate in a range above 380V and in an interval of 1-24kV as disclosed in Leijon '427, page 9 lines 32-33 and continued on page 10 line 1, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Nilson (US Patent 6,798,105).

Colello et al. '424 in view of Kawamura '505 does not explicitly disclose:

- The stator is air-gap wound.

Nilson '105 discloses:

- The stator (1, Fig. 1) is air-gap wound (col. 3, lines 56-59).

The advantage of Nilson '105 is to provide a self-supporting winding and to provide a gaseous cooling medium (col. 2, lines 22-25).

Nilson '105 teaches that it is known to provide the stator (1, Fig. 1) being air-gap wound (col. 3, lines 56-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to (?) as taught by Nilson '105, since Nilson '105 states that such a modification would provide a self-supporting winding and to provide a gaseous cooling medium (col. 2, lines 22-25).

12. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Blake et al. (US Patent 6,388,347).

Colello et al. '424 in view of Kawamura '505 does not disclose:

- The power storage is gyro suspended.

Blake et al. '347 discloses:

- The power storage (118 and 120, Fig. 1) is gyro suspended (122 and 124, Fig. 2; col. 16, lines 58-59).

The advantage of Blake et al. '347 is to provide a net zero external gyroscopic force and thus manages momentum (col. 3, lines 55-59).

Blake et al. '347 teaches that it is known to provide a power storage (118 and 120, Fig. 1) is gyro suspended (122 and 124, Fig. 2; col. 16, lines 58-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a power storage (118 and 120, Fig. 1) is gyro suspended (122 and 124, Fig. 2; col. 16, lines 58-59) as taught by Blake et al. '347, since Blake et al. '347 states that such a modification would provide a net zero external gyroscopic force and thus manages momentum (col. 3, lines 55-59).

In re claim 14, Blake et al. '347 discloses the flywheel (118, Fig. 1) comprises two rotary masses (118 and 120, Fig. 1) that are arranged to rotate in opposite directions (col. 7, lines 43-45) of rotation in relation to each other.

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Leijon (WO 97/45935).

Colello et al. '424 in view of Kawamura '505 does not disclose:

- One of said windings comprises a conductor surrounded by a first semiconducting layer, said first semiconducting layer is then surrounded by a layer of fixed insulation, said first layer of fixed insulation is then surrounded by a second semiconducting layer.

Leijon '935 discloses:

- One of the windings (6, Fig. 2) comprises a conductor (31, Fig. 2) surrounded by a first semiconducting layer (31, Fig. 2), said first semiconducting layer is then surrounded by a layer of fixed insulation (33, Fig. 2), said first layer of fixed insulation is then surrounded by a second semiconducting layer (34, Fig. 2).

The advantage of Leijon '935 is to increase the voltage of the machine to such levels that it can be connected directly to the power network without an intermediate transformer (pg. 1, lines 32-34).

Leijon '935 teaches that it is known to provide one of the windings (6, Fig. 2) comprising of a conductor (31, Fig. 2) surrounded by a first semiconducting layer (31, Fig. 2), said first semiconducting layer is then surrounded by a layer of fixed insulation (33, Fig. 2), said first layer of fixed insulation is then surrounded by a second semiconducting layer (34, Fig. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide one of the windings (6, Fig.

2) comprising of a conductor (31, Fig. 2) surrounded by a first semiconducting layer (31, Fig. 2), said first semiconducting layer is then surrounded by a layer of fixed insulation (33, Fig. 2), said first layer of fixed insulation is then surrounded by a second semiconducting layer (34, Fig. 2) as taught by Leijon '935, since Leijon '935 states that such a modification would increase the voltage of the machine to such levels that it can be connected directly to the power network without an intermediate transformer (pg. 1, lines 32-34).

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colello et al. '424 in view of Kawamura '505 as applied to claim 1 above, and further in view of Smith et al. (US Patent 6,163,097).

Colello et al. '424 in view of Kawamura '505 does not disclose:

- The rotor having a first core, second core, and a third core with the first winding of the stator being arranged between said first and second cores and the second winding of the stator being arranged between said second and third cores.

Smith et al. '097 discloses:

- A rotor (15, Fig. having a first core (14, Fig. 3), second core (14, Fig. 3), and a third core (14, Fig. 3) with the first winding (100, Fig. 3) of the stator (12, Fig. 3) being arranged between said first and second cores and the second winding (100, Fig. 3) of the stator (F12, Fig. 3) being arranged between said second and third cores.

The advantage of Smith et al. '097 is to maximize the density of the conductor in the gap between axially adjacent poles and, thus, the current capacity of the conductor (col. 2, lines 58-60).

Smith et al. '097 teaches that it is known to provide a rotor (15, Fig. having a first core (14, Fig. 3), second core (14, Fig. 3), and a third core (14, Fig. 3) with the first winding (100, Fig. 3) of the stator (12, Fig. 3) being arranged between said first and second cores and the second winding (100, Fig. 3) of the stator (F12, Fig. 3) being arranged between said second and third cores. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a rotor (15, Fig. having a first core (14, Fig. 3), second core (14, Fig. 3), and a third core (14, Fig. 3) with the first winding (100, Fig. 3) of the stator (12, Fig. 3) being arranged between said first and second cores and the second winding (100, Fig. 3) of the stator (F12, Fig. 3) being arranged between said second and third cores as taught by Smith et al. '097, since Smith et al. '097 states that such a modification would maximize the density of the conductor in the gap between axially adjacent poles and, thus, the current capacity of the conductor (col. 2, lines 58-60).

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Valdemarsson (WO 02/19353 A1) discloses a stator with first and second windings with one having a low voltage of operation and the other having a high voltage of operation. Seguchi et al. (US Patent 6,590,312) discloses a power storage

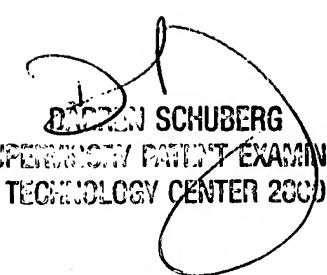
system with a flywheel, electric apparatus, and an energy storage with the power storage giving and receiving power. Natsuhara et al. (US Publication 2003/0057788) discloses a stator core with low voltage windings and high voltage windings acting independently from each other. Nakajima et al. (US Patent 6,470,984) discloses a power storage system with an energy storage connected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Jacobs whose telephone number is 571-270-1429. The examiner can normally be reached on M-Th, 7:30am-5:00pm est.; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ



BRIAN SCHUBERG  
SUPERNICHTY PATENT EXAMINER  
TECHNOLOGY CENTER 2000